

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 15, 22, and 24-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Schmenkel (EP 867605).

Claims 14, 15, and 22-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kohl (DE 3334413).

Claims 14, 22, and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Iwata (EP 722040).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf in view of Langer. The reference to Wolf discloses the recited exhaust pipe comprising a thin metal tube 36, an insulation mat 40 formed from ceramic fibers, where the use of a specific type of ceramic fiber such as long polycrystalline fibers is considered merely a choice of mechanical expedients where one skilled in the art would find it obvious to substitute any known ceramic fiber as such would only require routine experimentation to arrive at optimum values, and where an external casing 38 is provided to hold the insulation in, where the apparatus is formed from two unconnected sleeves create a space filled with air as seen inside the pipe 18, at least two exhaust pipes converge into one as seen in figure 1, where the section of pipe is included with a power train comprising a catalytic device, manifold and engine. The various dimensions of the layers are considered to be merely choices of mechanical expedients where one skilled in the art would only require routine experimentation to arrive at optimum values for thicknesses and such to meet the needs of the user and it would have been obvious to modify Wolf to meet these needs using only routine experimentation to arrive at the optimum values. The reference to Wolf discloses all of the recited structure with the exception of providing an expandable intumescent material of vermiculite, ceramic fiber, and organic binder to a layer of non intumescent material such as ceramic fiber insulation. The reference to Langer discloses that it is old and well known in the art to provide an exhaust pipe with an insulation sheet that is formed of various layers including a ceramic fiber insulation layer, where further a layer of intumescent material may also be included that includes vermiculite, ceramic fiber, and an organic binder. It

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would have been obvious to modify the insulation of Wolf by providing a layer of intumescent material consisting of a mixture of vermiculite, carbon fibers, and an organic binder to provide further protection from possible fire as well as insulative properties to the cover for the exhaust as suggested by Langer where such would provide a safer product.

Claims 14-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer in view of Wolf. The reference to Langer discloses all of the recited structure with the exception of forming the sheet material in half shells with a thin metal inner layer for a pipe that has two pipes converging into one. It would have been obvious to one skilled in the art to modify the sheet in Langer by providing a thin metal layer, forming the sheet as two half shells and to utilize such to cover a pipe that has two pipes converging to one as suggested by Wolf where such is another known use and orientation of protection sheets for exhaust ducts and such would provide protection to pipes closer to the engine block thereby increasing the usefulness of the product.

Claims 14-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore in view of Wolf. The reference to Moore discloses the recited exhaust pipe comprising a thin inner wall 22, a peripheral sheath of thermally expandable intumescent material 26 which includes a mixture of vermiculite, ceramic fibers, and organic binder, a ceramic fiber insulation layer 24 is also provided where the use of long polycrystalline ceramic fibers is considered merely a choice of mechanical expedients where various types of ceramic fibers are disclosed and it would only require routine experimentation to try other fibers that are known in the art, a casing 28 surrounds the

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entire pipe, and where such can be formed into manifolds that connect to engines and catalytic devices, where the manifold can have at least two pipes converge into a single pipe. The thicknesses of layers is also taught where the inner layer can be less than 1mm, the intumescent layer can be 0.05-2mm, and the insulation layer is taught as well. It is considered inherent that the same materials would have the same density at operating temperatures as claim 18, and the choice of any specific ratio of thickness such as set forth in claim 21 is considered merely a choice of mechanical expedients, where if the right dimension of each layer were selected then this percentage would most likely be met. The reference to Moore discloses all of the recited structure with the exception of forming the thin inner layer of a thin metal and in a pair of unconnected sleeves. It would have been obvious to one skilled in the art to modify the inner layer of Moore to have a thin inner layer that is formed of metal and to form the member as a pair of unconnected sleeves as suggested by Wolf where such is a known equivalent manner to form the sleeves of this type, and using a thin metal layer would be cheaper than a ceramic layer thereby saving money inherently.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references to Merry, Foster, Howorth, TenEyck, and Shirk disclosing state of the art insulation systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James F. Hook whose telephone number is (571) 272-4903. The examiner can normally be reached on Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (571) 272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James F. Hook/
Primary Examiner, Art Unit 3754

JFH